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## Costing Methodology Report

### Addendum

Prepared for:  
Federal Aviation Administration  
Assistant Administrator for Financial Services

December 1, 2000



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December 1, 2000

Dear Ms. McLean:

Arthur Andersen is pleased to deliver one original and 10 copies of our report entitled "Costing Methodology Report; Addendum." This report is being delivered in accordance with contract number DTFA01-99-A-08511 and contract number DTFA01-00-A-85006. This report provides additional explanation or clarification of issues raised regarding the costing methodology used to derive the FAA's full cost to provide Enroute and Oceanic air traffic control services in fiscal year 1999, using the FAA's Cost Accounting System.

We appreciate the opportunity to assist you.

Very truly yours,

Barry Kaufman

LGW

cc:

Tim Lawler, APF-1

Randall Fiertz, APF-2

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## 1 Introduction

On May 23, 2000, Arthur Andersen submitted to the Federal Aviation Administration (FAA) a report entitled *Costing Methodology Report: Development of Enroute and Oceanic Air Traffic Control Service Costs* ("the CM Report"). FAA chose to use that report as one of several supporting documents in the development of its Interim Final Rule (IFR) on "Overflight Fees." The CM Report was published in the Federal Register as part of the IFR on Overflight Fees on June 6, 2000. Since that time the FAA has received comments requesting additional explanation or clarification on the costing methodology described in the CM Report. The FAA requested Arthur Andersen to prepare this Addendum to meet that need.

The topics discussed in this addendum fall into the following categories:

- Additional explanation of certain key assumptions made by the FAA;
- The scope of data included in the Cost Accounting System (CAS); and
- Additional explanation of the treatment of certain key cost pools.

## 2 Key Assumptions

Some recipients of the initial CM Report provided feedback to the FAA that indicates several misconceptions with regard to certain key assumptions and design decisions made by FAA when developing the cost of Enroute and Oceanic services. These assumptions relate to the following issues:

- Reliability of FAA financial data; and
- Concept of "best available data."

As mentioned in the CM Report, the FAA has implemented a cost accounting system as part of improving its overall financial and performance management. A primary initiative in this area has been to receive an unqualified audit opinion on its financial statements. Another important initiative is to improve capitalization processes. This is in addition to the FAA's focus on implementing a performance management system and culture.

The Department of Transportation (DOT) Office of the Inspector General (IG) issued an unqualified audit opinion on FAA's 1999 financial statements. From this independent audit the FAA received, as stated in the opinion, confirmation that its costs are presented in accordance with Federal Generally Accepted Accounting Principles and fairly present the results of operations related to those costs. This opinion includes finding that the FAA's accounting treatment for capital expenditures is in accordance with Federal accounting standards, and that the IG identified no significant issues regarding the capitalization data. The IG's Management letter and audit report is available on the FAA's web site.<sup>1</sup>

When designing the CAS, the FAA relied on the Federal Accounting Advisory Board's Statement of Federal Financial Accounting Standard No. 4, *Managerial Cost Accounting Concepts and Standards for the Federal Government* (FASAB4). FASAB4 discusses the complexity of cost accounting processes to be employed by federal agencies but does not specify the degree of complexity or sophistication of any managerial cost accounting process. FASAB4 instructs agencies to determine their own appropriate level of detail or complexity based on several factors. Two of these factors, key to the FAA's cost accounting design, include:

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<sup>1</sup> [www.faa.gov/aba/html\\_finance\\_manage/fin\\_state\\_ann\\_rep.html](http://www.faa.gov/aba/html_finance_manage/fin_state_ann_rep.html)

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- Relative precision desired and needed in cost information; and
- Practicality of data collection and processing.

These two factors form the basis for the "best available data" concept adopted by the FAA. "Best available data" as defined by the FAA refers to the use of data that is readily available from either automated or non-automated sources, that represent the most current and accurate source of data in any given business area. Often, the FAA had choices as to what data to use as the basis for an allocation. The FAA strived to choose the most accurate and readily available data source. Arthur Andersen concurs with the design decisions made based on both our public and private sector experience and our assessment of the sources of information for use in this phase of the CAS implementation. When faced with a decision between one source that is not readily available and another that is, FAA management made a determination as to the relative costs and benefits to select the appropriate source. The FAA relied on this approach, as reflected in the CM Report, to develop the following cost assignments:

- Allocating Airway Facilities (AF) non-labor costs and Air Traffic (AT) and AF workers compensation claims to projects and Service Delivery Points (SDPs) based on labor costs; and
- Allocating AF labor costs to projects and SDPs based on staffing standards.

The FAA's reason for allocating these costs to projects and SDPs, at the current time, is to accomplish full costing of Air Traffic Services (ATS) services for overflight fee purposes. In the future, new business drivers, such as cost and performance management, may require these costs to be directly assigned. Arthur Andersen concurs with this initial design decision until direct tracing capabilities are available for the entire AF work force. AF non-labor costs represent approximately 1% of total Enroute costs. To directly assign AF non-labor costs the FAA would have to modify its legacy accounting system (currently scheduled for replacement in fiscal year 2002) requiring an extensive system development effort beyond the current project's scope. In addition, this change would impose a major process change on employees. Therefore, for the purposes of determining overflight fees, the FAA deemed the burden of the changes described above to outweigh the benefit derived given the relative size of the cost pool at issue. Arthur Andersen agrees with the FAA's approach that the deferral of implementing direct assignment techniques to address this small pool of costs would not be a prudent use of their limited funding sources.

As for workers compensation costs, AT generates the major share of the workers compensation liability. ATS believes it is reasonable, based on the nature of air traffic control work, that labor costs, used as a proxy for headcount, is a reasonable indicator for the accurate distribution of workers compensation claims (i.e., the more employees an SDP has, the higher their workers compensation bill). The FAA is working to improve this assignment by using actual workers compensation claims as the basis, an improvement planned for Fiscal Year 2001. Arthur Andersen concurs with this initial effort and the need to routinely reexamine the initial cost drivers.

In place of actual time recording the FAA is relying on staffing standards to assign AF labor costs to projects and SDPs. This approach has been discussed with the IG. These discussions have resulted in agreement that staffing standards represent the best available data source for allocating these costs at the present time. This agreement comes with the understanding that ATS management works towards a more direct, time recording-based method of assigning these costs (the FAA recently provided a report to the IG outlining a plan to implement labor distribution agency-wide). Arthur Andersen supports the continual

refinement of the labor reporting processes in use and planned by the FAA. We are not aware of alternative sources currently available but note that such standards need to be periodically validated for reasonableness. This is similar to the Inspector General's recommendation in this area as well.

### **3 Scope of Data**

Additional questions, received following release of the Costing Methodology Report, were raised regarding the scope of the data included in the CAS. Specifically, the need for clarifications involved the following items:

- Whether the CAS includes data from all FAA Lines of Business (LOB); and
- The degree to which the Enroute and Oceanic services may have been inappropriately burdened with certain allocations.

The CM Report included a section (Section 3.0) that described the origin of CAS financial data. While the report focuses on how financial data, related to the Enroute and Oceanic services, were processed, the scope of the system covers all areas of FAA costs, including non-Enroute and Oceanic data. Arthur Andersen participated in the development of the reconciliation process and subsequent FAA enhancements to confirm that all costs are reconciled between the general ledger and the CAS. These procedures are in place and are routinely performed by FAA personnel.

All financial data obtained from the FAA's General Ledger system (with the exception of certain year-end adjustments specified in the report at Section 4.2.6) have an organizational identifier. This data element, referred to as cost center, indicates not only the LOB to which a cost transaction belongs, but also a specific sub-organization within the LOB. For example, each Enroute Center, Tower, and Flight Service Station is assigned a cost center value to collect all costs incurred (labor and non-labor) by the Air Traffic organization at those facilities. Using these cost center values, the CAS is able to directly assign 100% of Air Traffic's field costs to the correct Service.

Cost center is also the key data element used to assign AF costs. The CAS processes all AF costs including those allocated to Enroute, Oceanic, Flight Service and Terminal. As described in the initial report (see Section 4.2.2), AF costs are first allocated to the equipment AF maintains. Equipment was then assigned to the four services based on the intended purpose and location of each piece of equipment. If a particular piece of equipment is primarily dedicated to Enroute (e.g., a long range radar) it is assigned to the Enroute service. Items that can be used to support any service (e.g., a computer terminal) were assigned to services based on location – if the item is located at a Tower, it was assigned to Terminal. All AF costs are allocated based on how equipment was assigned. This approach helps ensure that all AF field costs are accounted for, and applies a consistent methodology to cost each service.

This same concept is used for all other FAA (i.e., non-ATS) costs. The cost center enables the CAS to identify cost pools outside of ATS such as logistics, overhead, etc. as well as targets for allocations. For example, one allocation may pool together all human resource (HR) cost centers and allocate the costs to all LOBs (ATS being one). This ensures that all HR costs are allocated consistently and to all segments of the FAA, not just ATS.

Undue cost burden occurs when a driver or allocation basis does not reflect the nature of the work performed by the pool being allocated. In other words, using labor as the

allocation basis for HR costs assumes that HR's work is greater for LOBs with more employees. Given the reasonableness of this assumption, then using labor as an allocation basis avoids inappropriately burdening certain LOBs. Arthur Andersen is not aware of any allocation bases drivers that create any cost subsidies or penalties in the FAA's design decision. In developing the CAS, the FAA carefully considered the selection of allocation drivers or bases in order to choose the one that best reflects the nature of the work being performed by the pool being allocated. This was done in order to avoid, or at least minimize, any instances where over or underburdening might occur.

#### **4 Treatment of Key Cost Pools**

The FAA decided, subsequent to the release of the CM Report, that additional detail was necessary to more fully explain the treatment of certain cost pools with the CAS. The pools include Oceanic Air Traffic labor and capital costs.

As described in the CM Report (see Section 4.3), to assign AT labor costs between Enroute and Oceanic, the FAA conducted a statistical analysis of controller sign-in/sign-out (SISO) data. Arthur Andersen assisted the FAA in this statistical analysis to confirm the validity of the sampling techniques. This analysis was performed at the request of the DOT IG's office, which also reviewed the methodology and final results. This data, captured at the employee/controller level, represented the time each person spent "on-position" working either domestic enroute or oceanic air traffic (a single controller may be certified to work both environments). Data was collected at each of the four Enroute Centers that provide Oceanic service (New York, Houston, Oakland, and Anchorage).

The sampling strategy was designed to estimate the average oceanic labor fraction of total controller labor at each center to within a relative error of  $\pm 5\%$ , with a 95% statistical confidence. A sample size of 40 days was calculated, which meets the FAA's relative error and confidence requirements. Forty random dates were then selected between February 19<sup>th</sup> through September 6<sup>th</sup>, 1999.

Following the IG's review and sign-off on the statistical analysis, the resulting percentages were used in the CAS to assign a portion of the Enroute labor cost to the Oceanic service at each of the four Enroute Centers that also provide Oceanic service.

The treatment of capital costs within the CAS was an additional area where the FAA sought to provide a more detailed explanation of the CAS design. This information related to the expensing of certain items including non-recurring costs (i.e., Y2K fixes) as well as research and development costs.

The FAA's Office of Financial Management publishes a desk guide which summarizes FAA capitalization and accounting practices. Chapter 2 of this desk guide instructs FAA personnel, responsible for accounting for property, plant, and equipment, how to treat these items properly. This document, available on the FAA's web site<sup>2</sup>, provides the following guidance regarding capitalization of software and research and development costs, respectively:

- "...software costs that are not eligible for capitalization include...enhancements that merely correct a design flaw or extend the useful life of the software." Y2K remediation expenses fall into this category.

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<sup>2</sup> [www.faa.gov/aba/html\\_finance\\_manage/asset\\_cap.html](http://www.faa.gov/aba/html_finance_manage/asset_cap.html)

- "...Expense any costs incurred for a project before technological feasibility has been determined." This describes research and development projects as executed by the FAA.

This desk guide states that the procedures and policies upon which the guide is based are compliant with all relevant Federal Accounting Standard Advisory Board Statements as well as Chief Financial Officer Act requirements. This information, in conjunction with the IG's audit opinion, should provide third parties and the public with the FAA's assurance that the treatment of capital costs, depreciation expenses and the related policies and procedures are sound.

## **5 Summary**

Throughout the implementation process the development teams have been thoughtful and deliberate in designing a system that is consistent with FASAB4 and the accompanying Cost Accounting Implementation Guide. Arthur Andersen's perspective is that the FAA approach and development of the Cost Accounting System has resulted in a system that will become a valuable management tool for the FAA.

The best management information systems at many of the largest and most respected private sector organizations are continuously improved over time. The FAA's cost accounting system is similar. Like those private sector entities, the FAA will continue to make enhancements while retaining the fundamental design concepts and principles that focus on making the data both accurate and useful .